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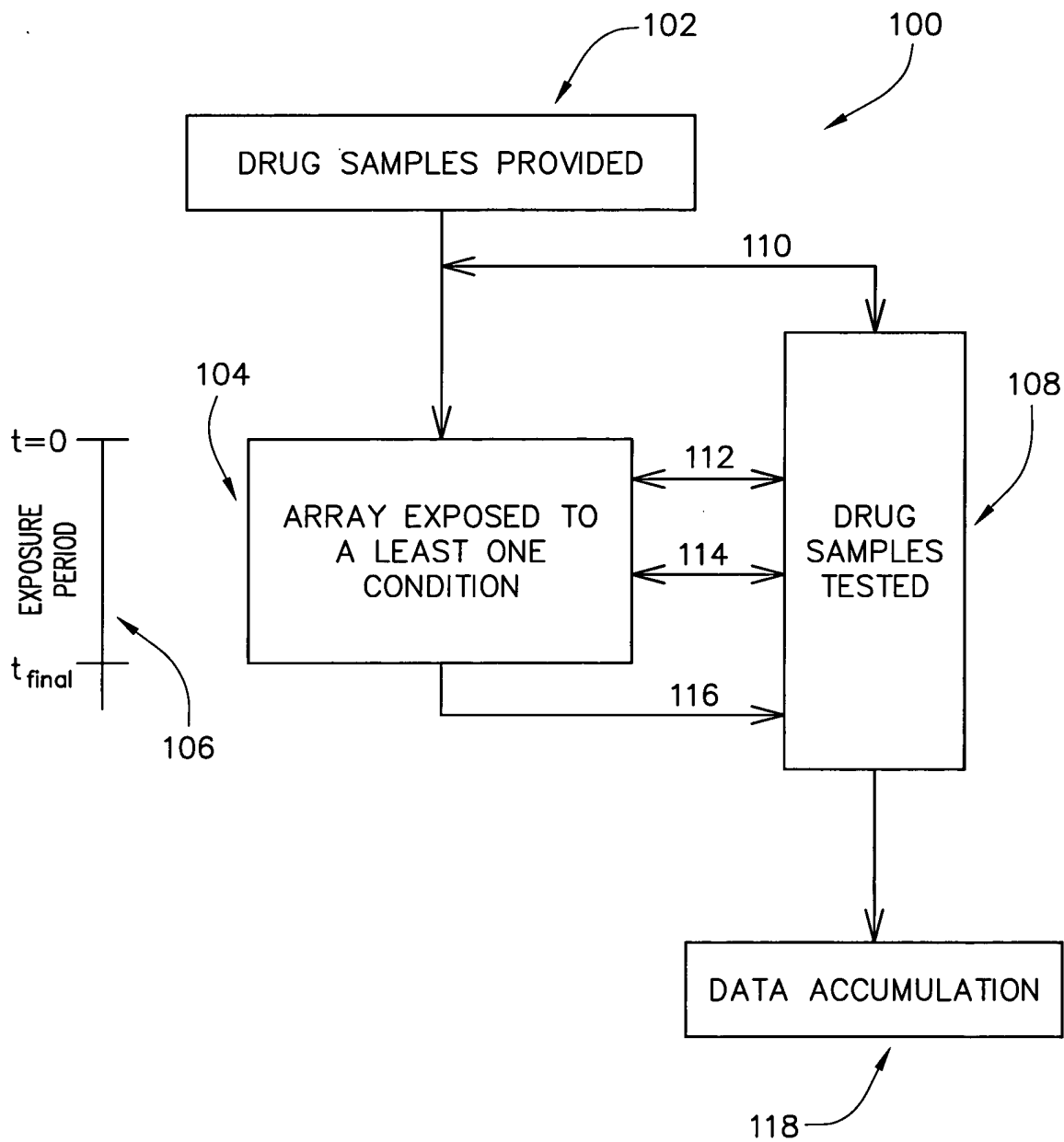


FIGURE 1

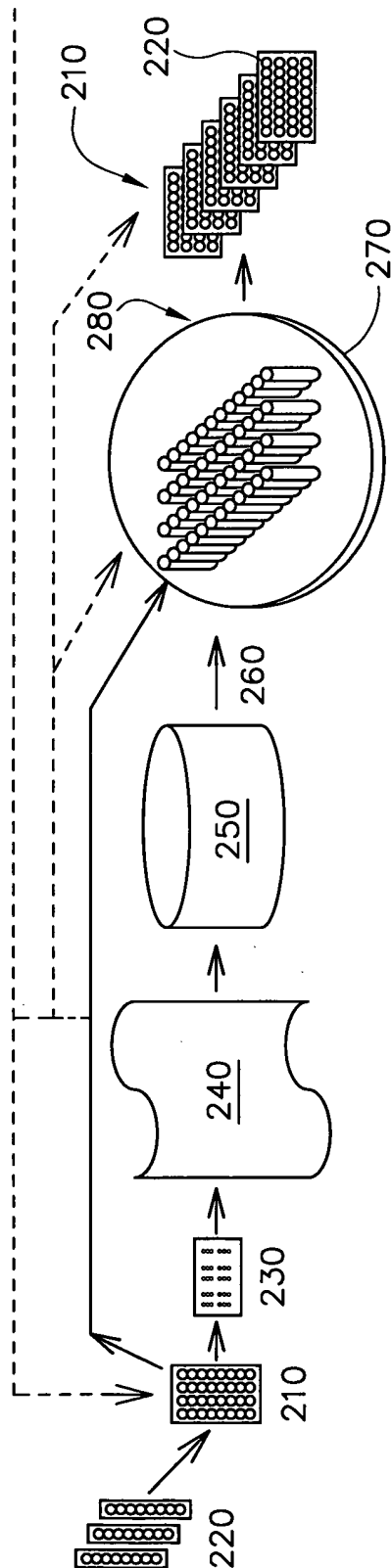


FIGURE 2

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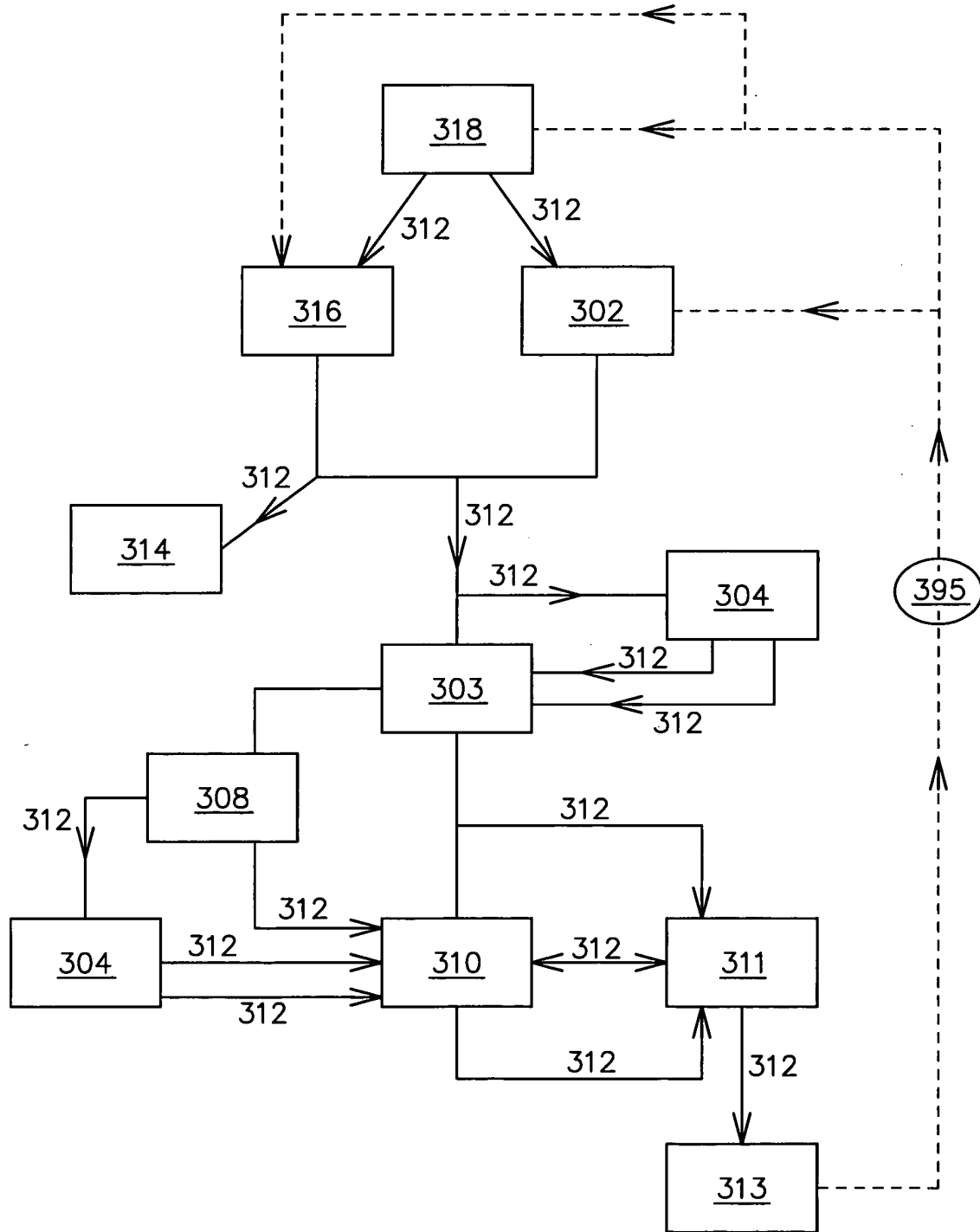


FIGURE 3

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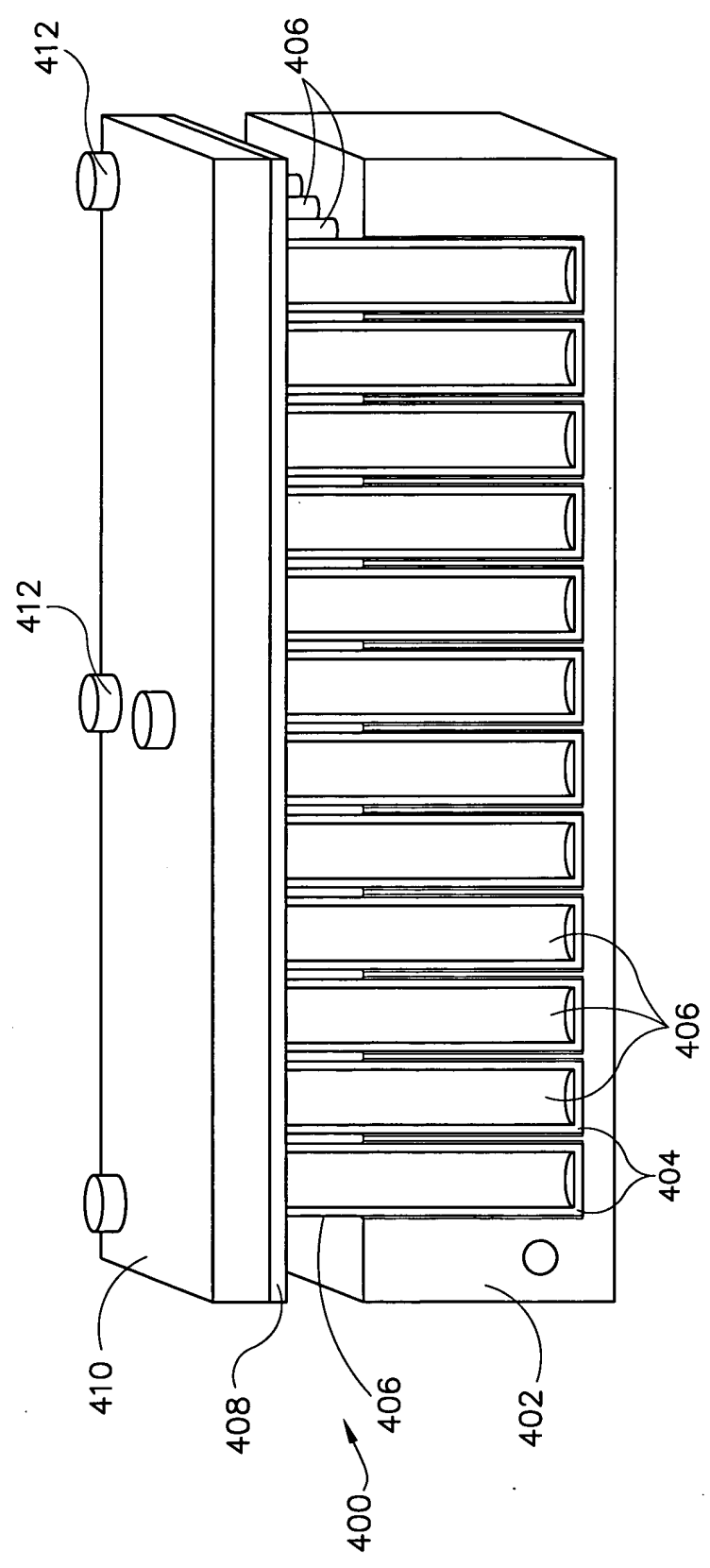


FIGURE 4

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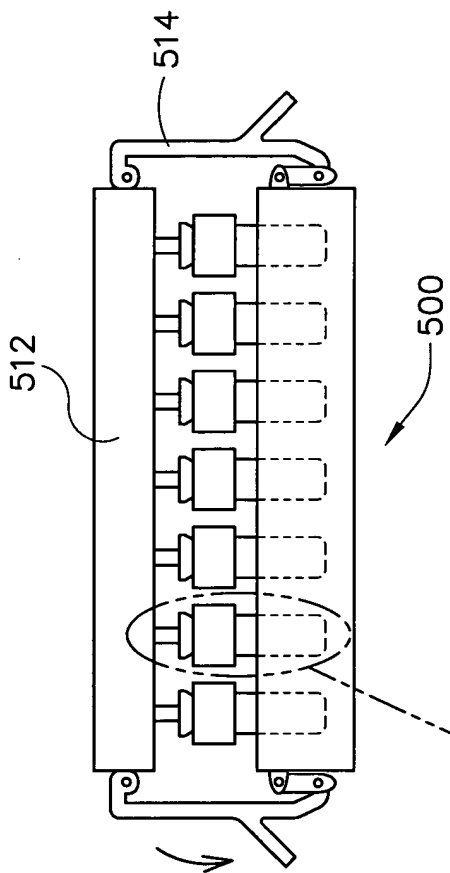


FIGURE 5A

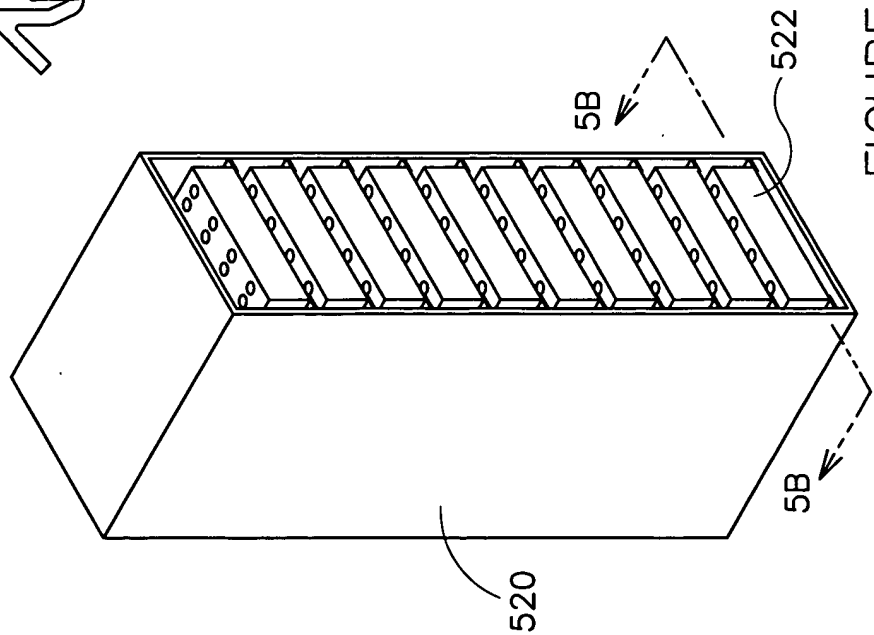


FIGURE 5B

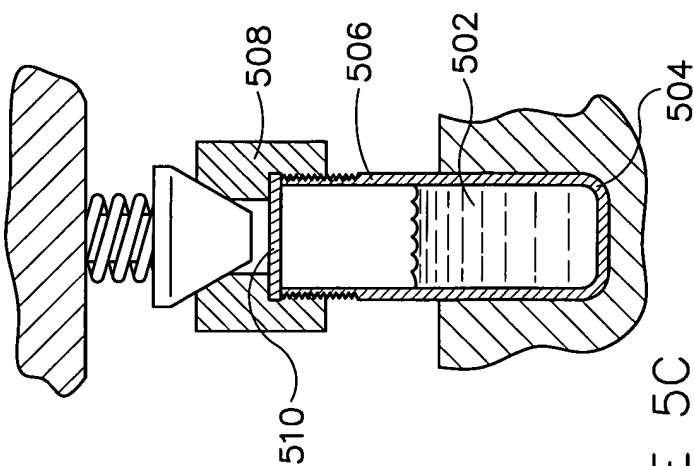


FIGURE 5C

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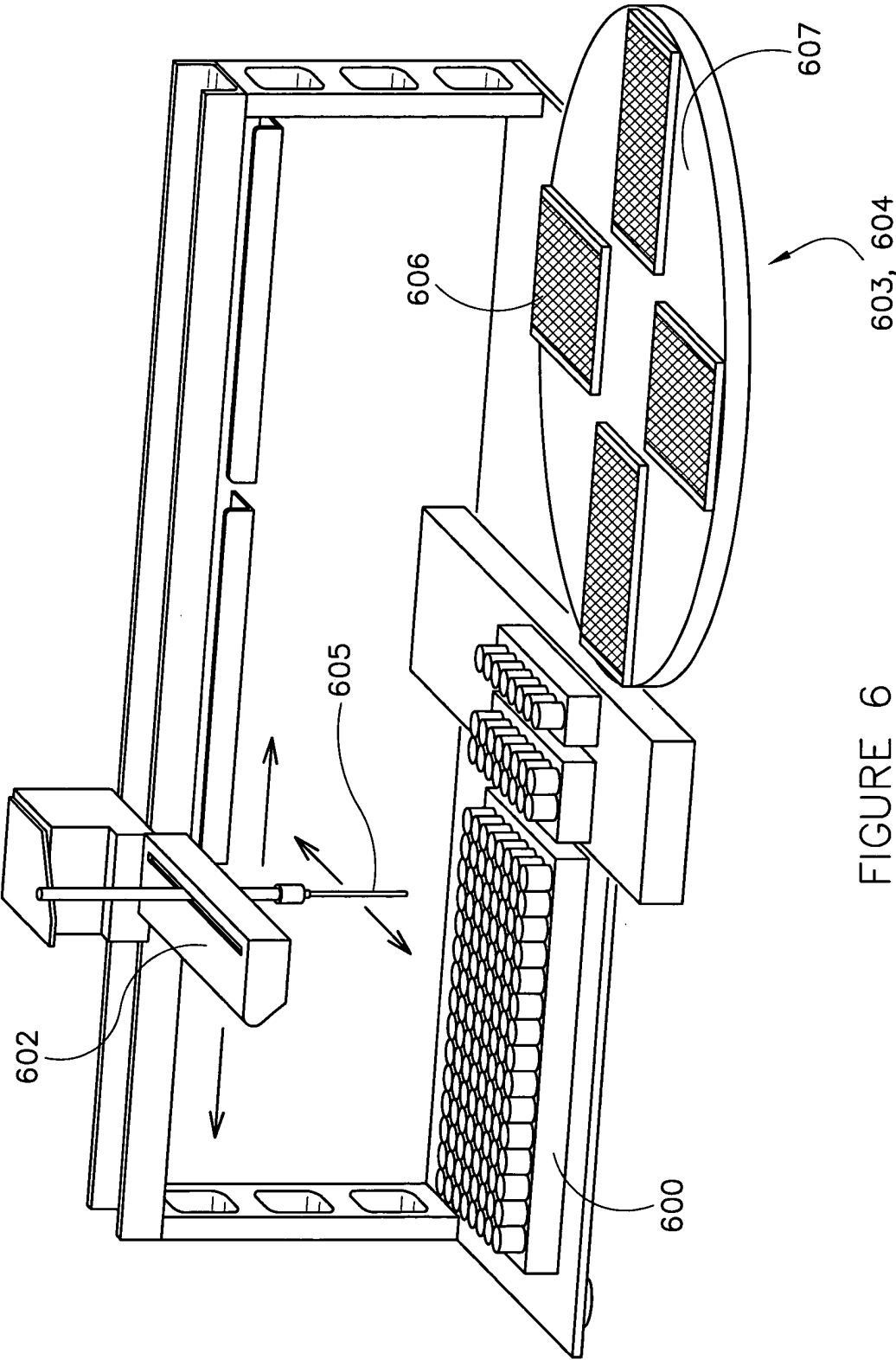
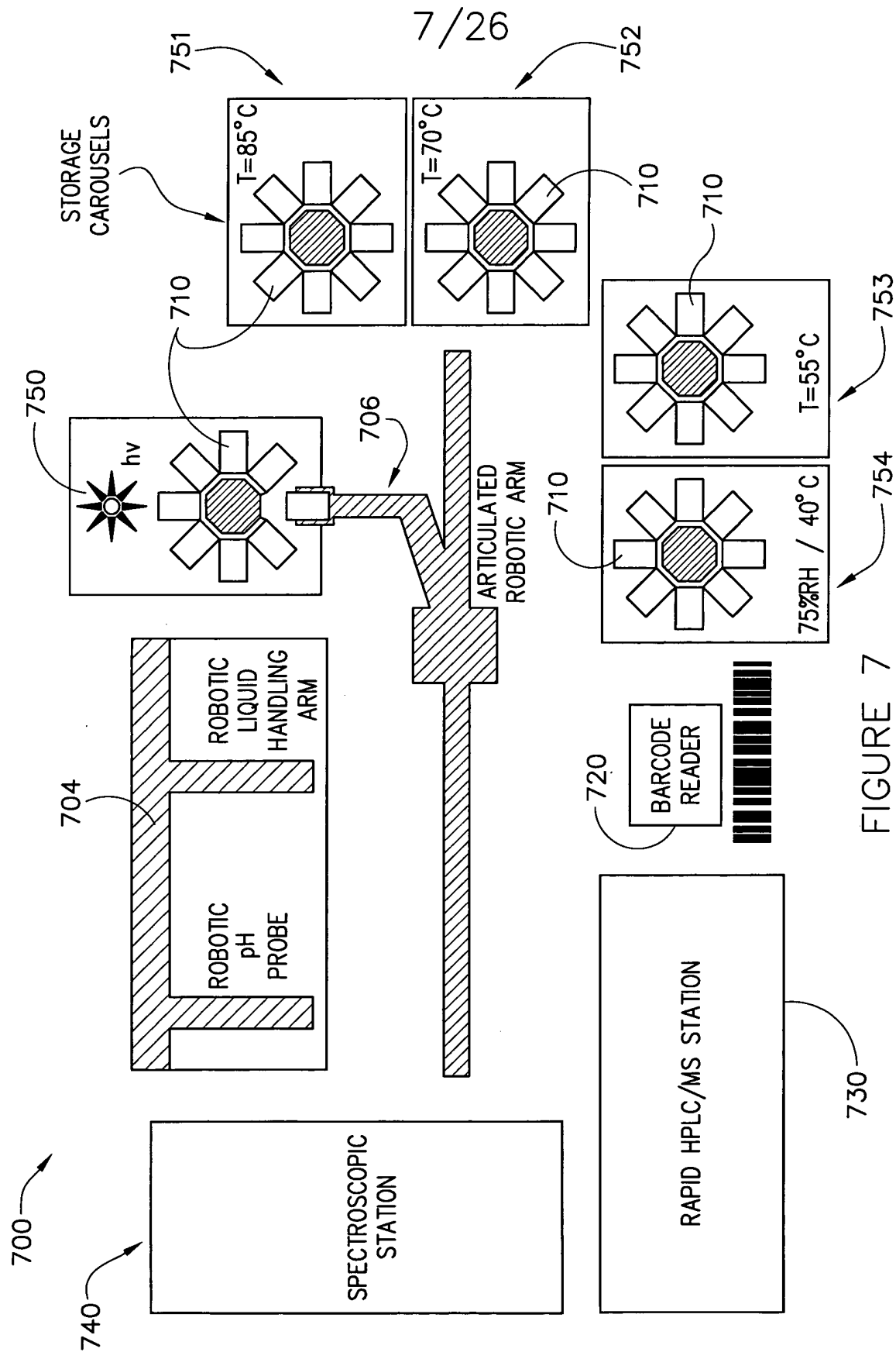


FIGURE 6



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| 1            | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 10.0<br>mg/mL               |
|--------------|---|---|---|---|---|---|---|---|----|----|----|-----------------------------|
|              |   |   |   |   |   |   |   |   |    |    |    |                             |
| UNCONTROLLED | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 0.4 mg/mL                   |
| A            |   |   |   |   |   |   |   |   |    |    |    |                             |
| B            |   |   |   |   |   |   |   |   |    |    |    | 2.0 mg/mL                   |
| C            |   |   |   |   |   |   |   |   |    |    |    | 10.0 mg/mL                  |
| D            |   |   |   |   |   |   |   |   |    |    |    | 50.0 mg/mL                  |
| E            |   |   |   |   |   |   |   |   |    |    |    | ETHANOL (20wt%)             |
| F            |   |   |   |   |   |   |   |   |    |    |    | PROPYLENE GLYCOL<br>(20wt%) |
| G            |   |   |   |   |   |   |   |   |    |    |    | AIBN (1eq)                  |
| H            |   |   |   |   |   |   |   |   |    |    |    | HOOH (1eq)                  |

AQUEOUS SOLUTIONS WITH A TOTAL VOLUME OF 800  $\mu$ L/well

FIGURE 8A





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# EXCIPIENT COMPATIBILITY -- SOLIDS FORMULATIONS

## SOLIDS LIBRARY 2: FIXED DILUENT AND LUBRICANT WITH BINDERS, GLIDANTS, COLORANTS, ACIDIFIERS, ALKYLIZERS

|        | 1                    | 2           | 3               | 4                              | 5                             | 6               | 7               | 8           | 9               | 10        | 11          | 12              | GLIDANT          | COLORANT         |  |  | DESSICANT |
|--------|----------------------|-------------|-----------------|--------------------------------|-------------------------------|-----------------|-----------------|-------------|-----------------|-----------|-------------|-----------------|------------------|------------------|--|--|-----------|
| A      | 1.0 mgdc             |             |                 | 5.0 mg BINDER                  |                               |                 | 1.0 mg COLORANT |             |                 |           |             |                 | (NOTHING)        | (NOTHING)        |  |  |           |
| B      | 7.0 mg FIXED DILUENT |             |                 | 1 eq Ph ADJUSTER               |                               |                 | 10 mg DESSICANT |             |                 |           |             |                 | SILICON DIOXIDE  | SILICON DIOXIDE  |  |  |           |
| C      | 2.0 mg FIXED DILUENT |             |                 |                                |                               |                 | 1.0 mg GLIDANT  |             |                 |           |             |                 | CALCIUM SILICATE | CALCIUM SILICATE |  |  |           |
| D      |                      |             |                 |                                |                               |                 |                 |             |                 |           |             |                 | TALC             | TALC             |  |  |           |
| E      |                      |             |                 |                                |                               |                 |                 |             |                 |           |             |                 | (NOTHING)        | (NOTHING)        |  |  |           |
| F      |                      |             |                 |                                |                               |                 |                 |             |                 |           |             |                 | SILICON DIOXIDE  | SILICON DIOXIDE  |  |  |           |
| G      |                      |             |                 |                                |                               |                 |                 |             |                 |           |             |                 | CALCIUM SILICATE | CALCIUM SILICATE |  |  |           |
| H      |                      |             |                 |                                |                               |                 |                 |             |                 |           |             |                 | TALC             | TALC             |  |  |           |
| pH     | (NOTHING)            | CITRIC ACID | MAGNESIUM OXIDE | (NOTHING)                      | CITRIC ACID                   | MAGNESIUM OXIDE | (NOTHING)       | CITRIC ACID | MAGNESIUM OXIDE | (NOTHING) | CITRIC ACID | MAGNESIUM OXIDE |                  |                  |  |  |           |
| BINDER |                      | (NOTHING)   |                 | CARBOXYMETHYLCELLULOSE, SODIUM | HYDROXYPROPYL METHYLCELLULOSE |                 |                 |             |                 |           |             |                 |                  |                  |  |  |           |

FIGURE 8C

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|   | 1            | 2    | 3    | 4            | 5    | 6    | 7             | 8    | 9    | 10            | 11   | 12   |      |
|---|--------------|------|------|--------------|------|------|---------------|------|------|---------------|------|------|------|
|   | [dc]=1 mg/ml |      |      | [dc]=2 mg/ml |      |      | [dc]=10 mg/ml |      |      | [dc]=50 mg/ml |      |      |      |
|   | 1 eq         | 2 eq | 3 eq | 1 eq         | 2 eq | 3 eq | 1 eq          | 2 eq | 3 eq | 1 eq          | 2 eq | 3 eq |      |
| A |              |      |      |              |      |      |               |      |      |               |      |      | HCl  |
| B |              |      |      |              |      |      |               |      |      |               |      |      |      |
| C |              |      |      |              |      |      |               |      |      |               |      |      | NaOH |
| D |              |      |      |              |      |      |               |      |      |               |      |      |      |
| E |              |      |      |              |      |      |               |      |      |               |      |      | HOOH |
| F |              |      |      |              |      |      |               |      |      |               |      |      |      |
| G |              |      |      |              |      |      |               |      |      |               |      |      | AIBN |
| H |              |      |      |              |      |      |               |      |      |               |      |      |      |

TOTAL VOLUME = 800uL/well  
 dc = DRUG CANDIDATE

FIGURE 8D

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LIQUIDS SAMPLES  
 CHEMICAL STABILITY AND EXCIPIENT COMPATIBILITY

| CHEMICAL STABILITY AND EXPOSURE TO SUNLIGHT |                             |             |               |                     |                    |                   |                 |                          |                             |            |           |        |
|---|-----------------------------|-------------|---------------|---------------------|--------------------|-------------------|-----------------|--------------------------|-----------------------------|------------|-----------|--------|
| 10mg/mL<br>V=800uL                          | 1                           | 2           | 3             | 4                   | 5                  | 6                 | 7               | 8                        | 9                           | 10         | 11        | 12     |
|   | pH                          |             |               |                     |                    |                   |                 |                          |                             |            |           |        |
| CO-SOLVENT                                  | 2                           | 3           | 4             | 5                   | 6                  | 7                 | 8               | 9                        | 10                          | 11         | 12        |        |
| (NOTHING)                                   |                             |             |               |                     |                    |                   |                 |                          |                             |            |           |        |
| ETHANOL (160)                               |                             |             |               |                     |                    |                   |                 |                          |                             |            |           |        |
| PROPYLENE GLYCOL (160)                      |                             |             |               |                     |                    |                   |                 |                          |                             |            |           |        |
| GLYCERIN (160)                              |                             |             |               |                     |                    |                   |                 |                          |                             |            |           |        |
| PEG400 (160)                                |                             |             |               |                     |                    |                   |                 |                          |                             |            |           |        |
| POLOXAMER                                   | CAPTISOL                    | CITRIC ACID | TARTARIC ACID | SODIUM PHOSPHATE    | SILICON DIOXIDE    | POLYVINYL ALCOHOL | SODIUM ALGINATE | BENTONITE                | ATTAPULGITE                 | POLOXAMER  | Tw een 80 |        |
| STEARIC ACID                                | ACACIA                      | LECITHIN    | Tw een 80     | MONO. DI-GLYCERIDES | OLEIC ACID         | GUAR GUM          | DEXTRIN         | POVIDONE                 | MAGNESIUM ALUMINUM SOLICATE | HOCH (1eq) | AIBN(1eq) |        |
| MANNITOL                                    | D-GLUCOSE                   | GLYCERIN    | DEXTROSE      | POTASSIUM CHLORIDE  | SODIUM CHLORIDE    | XANTHAN GUM       | CELLULOSE (MC)  | CARBOXY-METHYL-CELLULOSE | HYDROXY-METHYL-CELLULOSE    | HOCH (5eq) | AIBN(5eq) |        |
|   | WETTING/SOLUBILIZING AGENTS |             |               | (8 mg)              | EMULSIFYING AGENTS |                   |                 | (8 mg)                   | SUSPENDING AGENTS           |            |           | (8 mg) |
|   | SQUESTERING AGENTS          |             |               | (8 mg)              | TONICITY AGENTS    |                   |                 | (8 mg)                   |                             |            |           |        |

10mg/mL  
 V=800uL

CO-SOLVENT

(NOTHING)

ETHANOL (160)

PROPYLENE GLYCOL  
 (160)

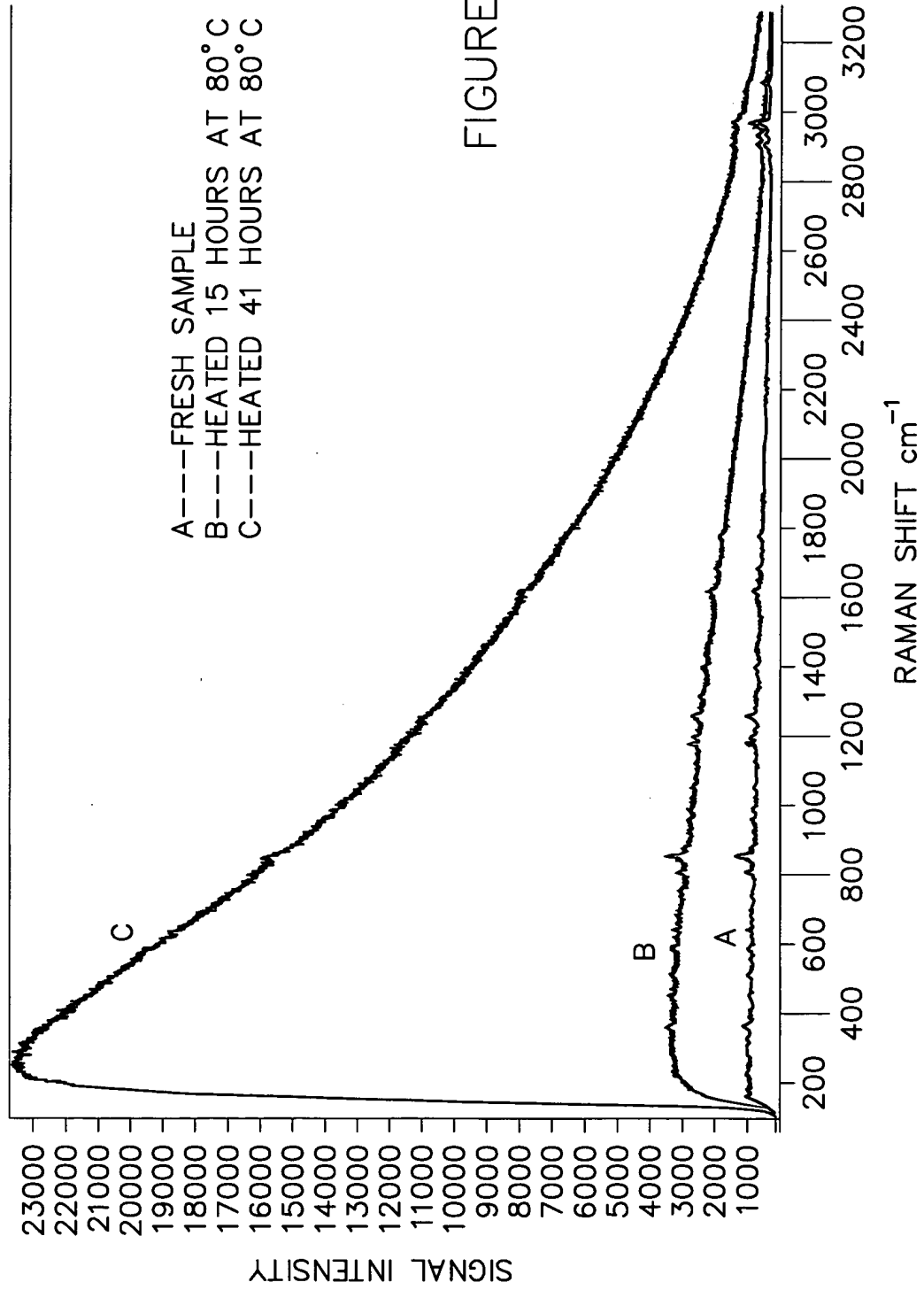
GLYCERIN (160)

PEG400 (160)

FIGURE 8E

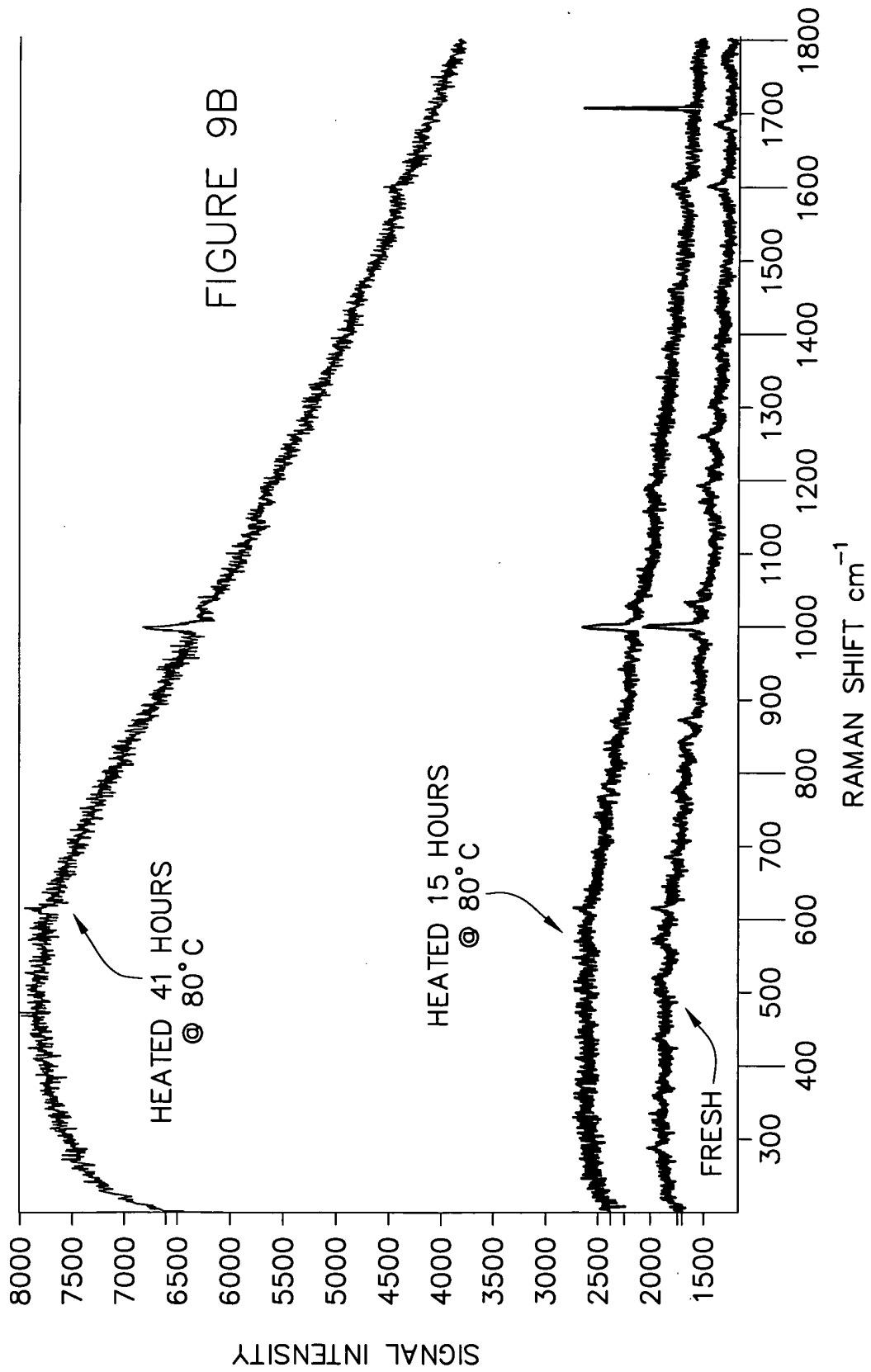
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STABILITY OF AMOXICILLIN BY FLUORESCENCE AT 632.8nm EXCITATION



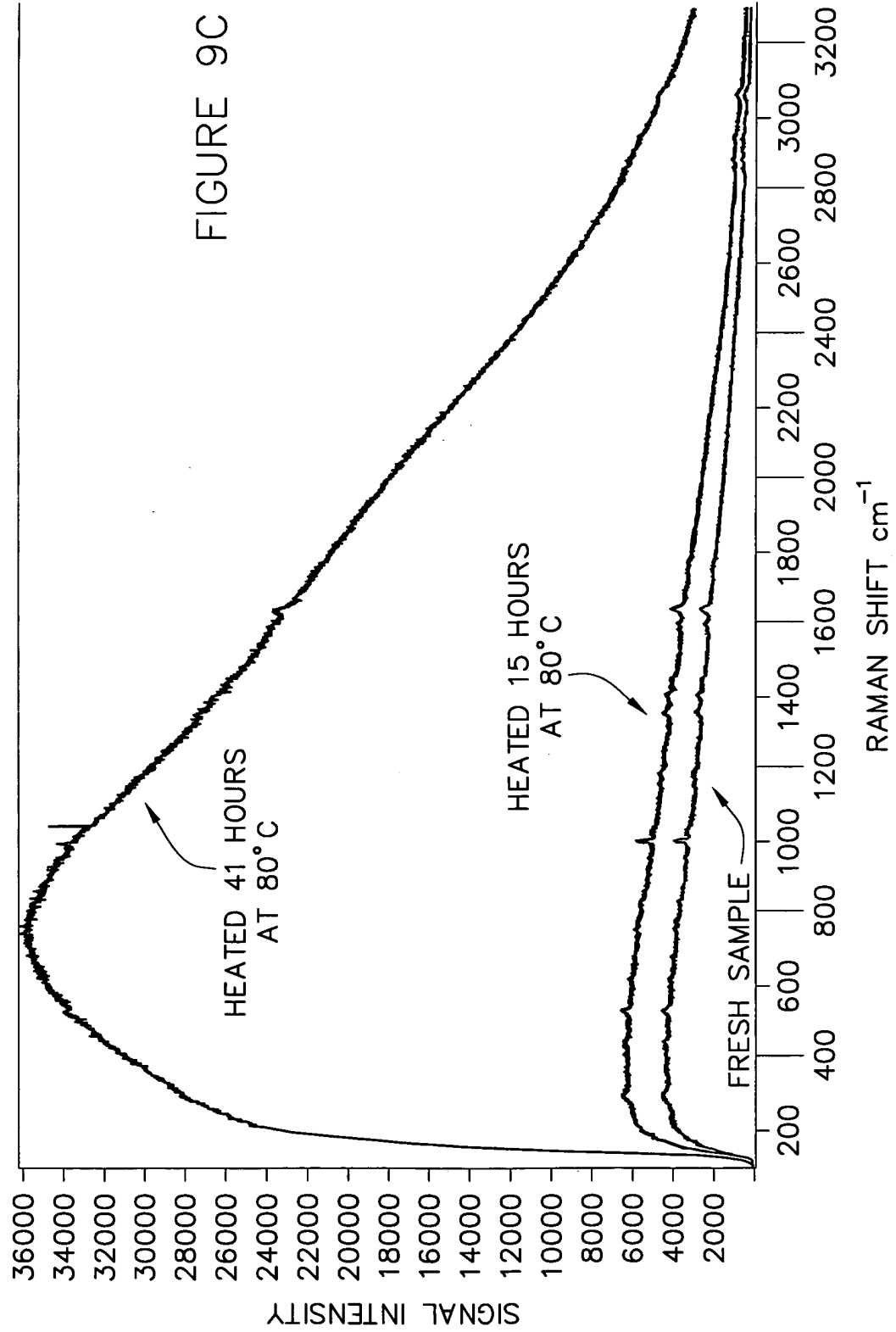
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FLUORESCENCE OF AMPICILLIN TRI-HYDRATE AT 632.8nm EXCITATION



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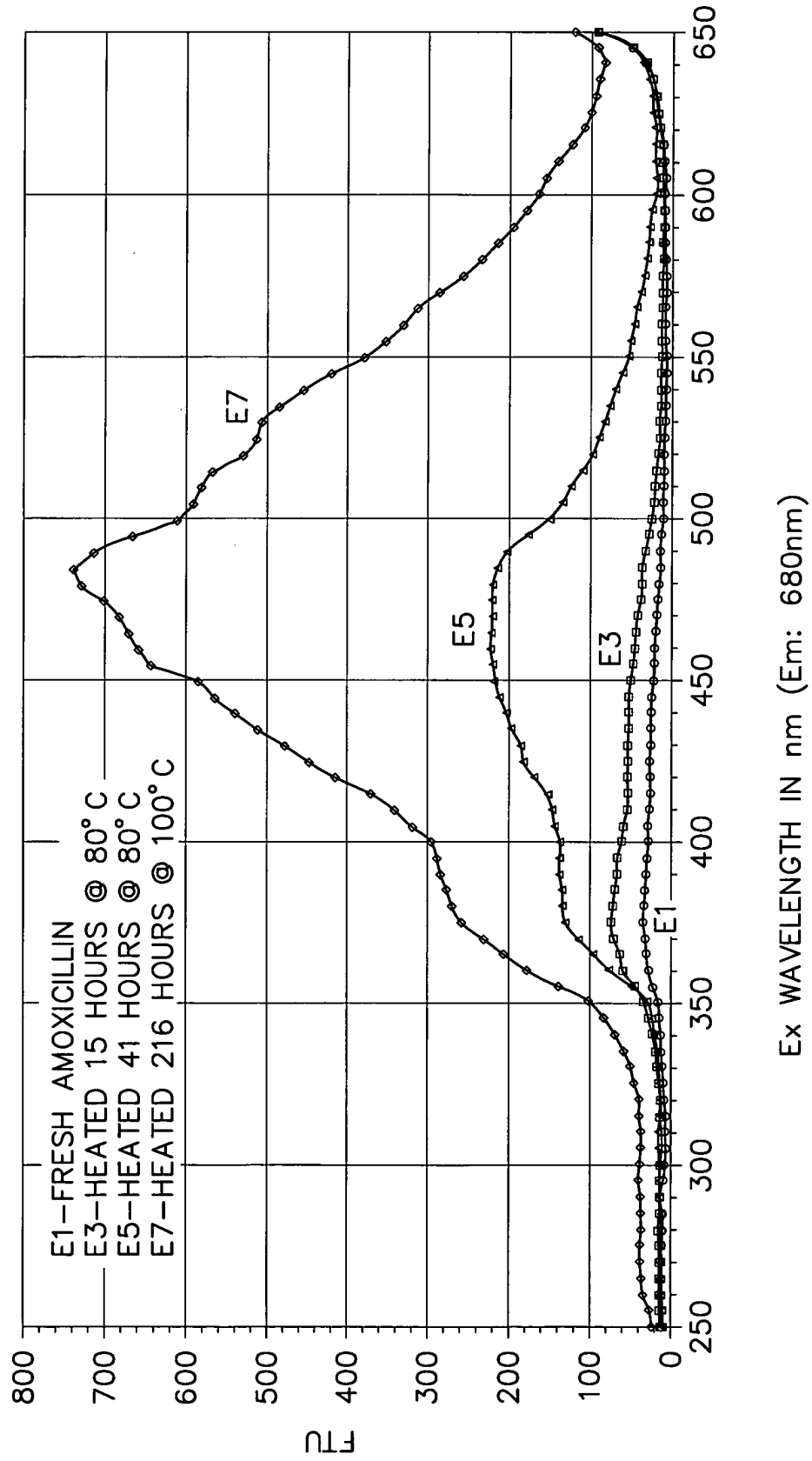
FLUORESCENCE OF CEPHALEXIN AT 632.8nm EXCITATION



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FIGURE 9D

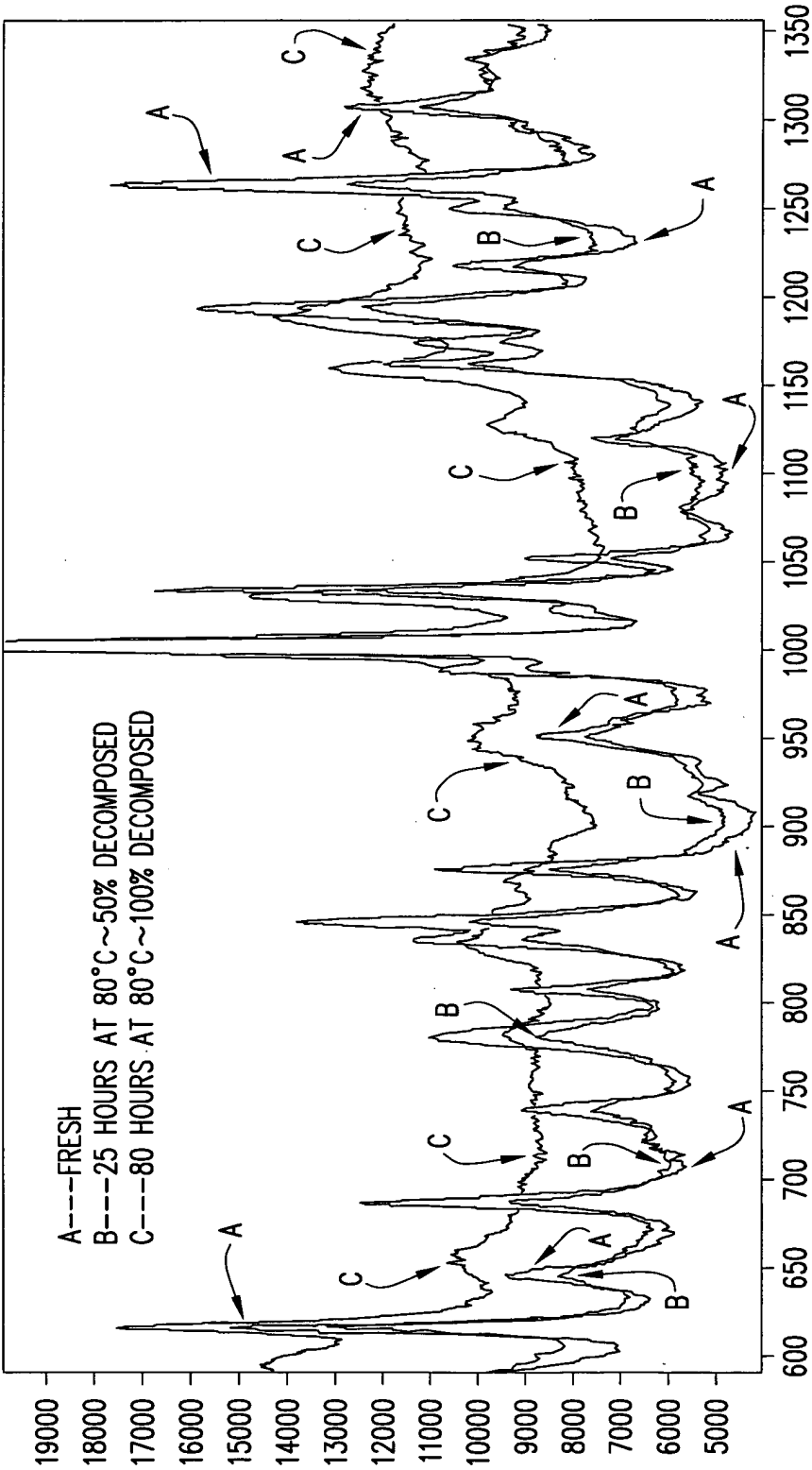
FLUORESCENCE EXCITATION SPECTRA OF AMOXICILLIN & ITS DECOMPOSITION  
PRODUCTS BY DETECTING AT 680nm





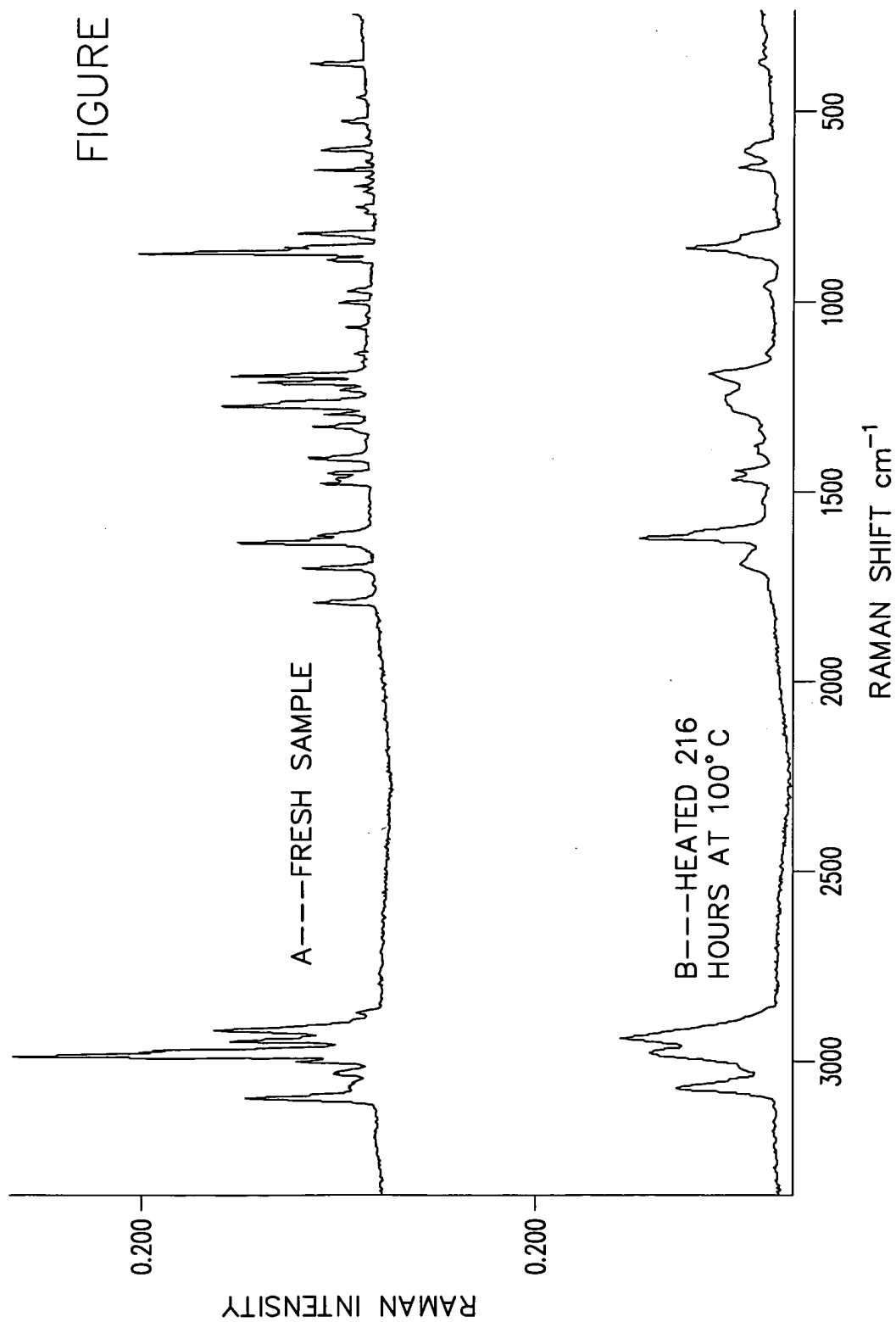
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FIGURE 10A  
RAMAN AT 785nm EXCITATION: AMPICILLIN TRIHYDRATE



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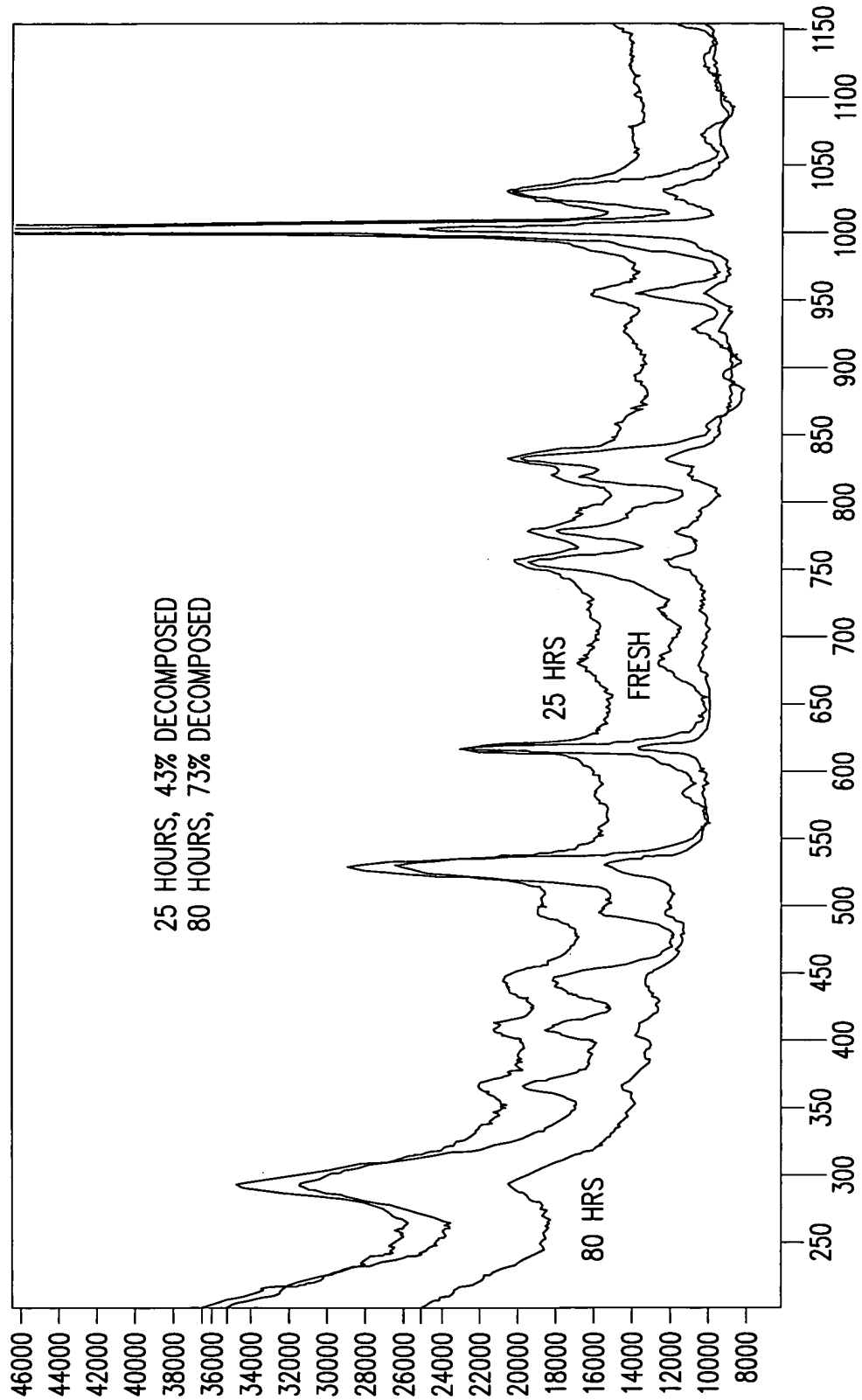
STABILITY OF AMOXICILLIN BY FT-RAMAN AT 1064nm EXCITATION



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FIGURE 10C

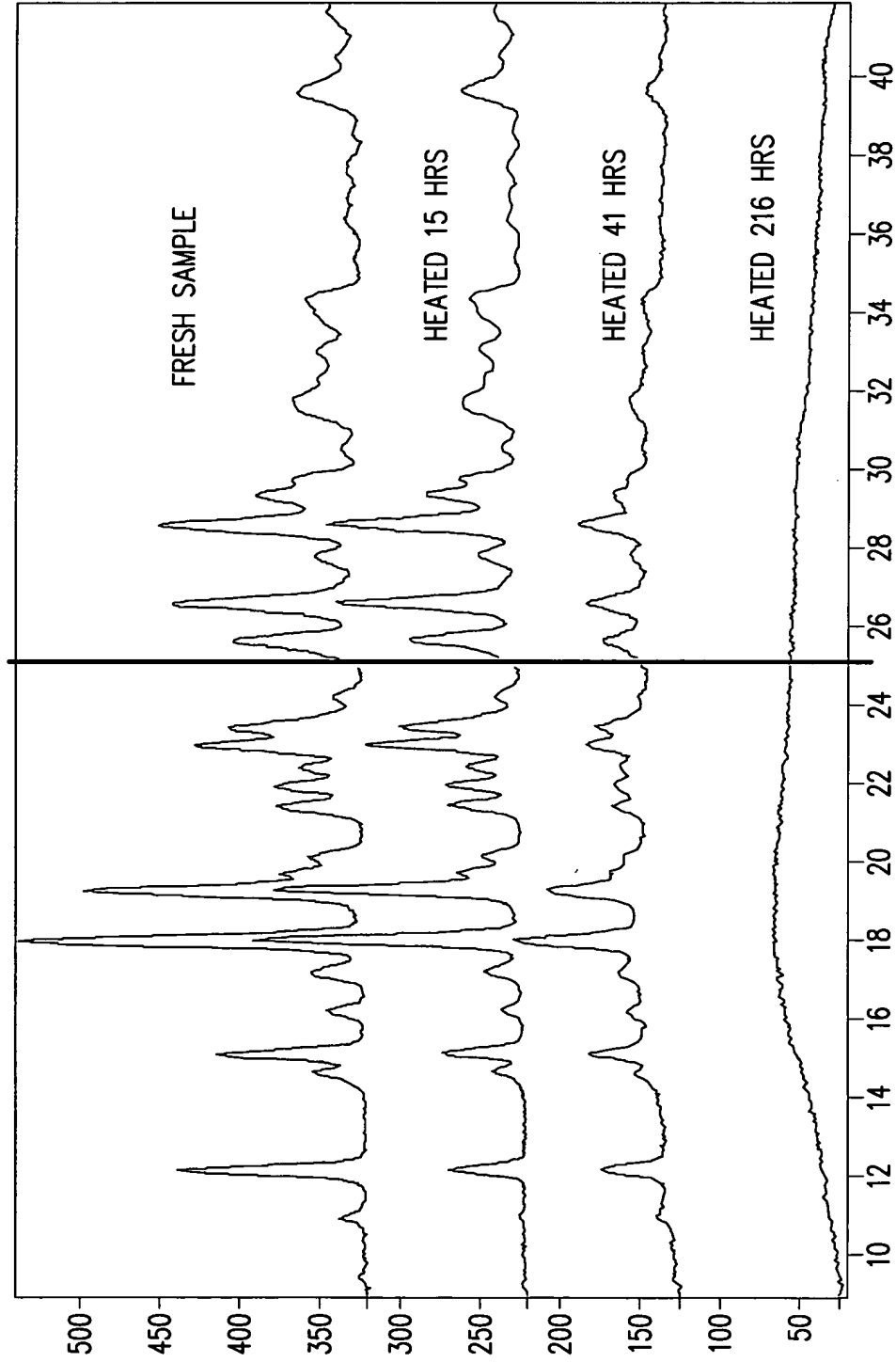
RAMAN AT 785nm EXCITATION: CEPHALEXIN HYDRATE



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FIGURE 11

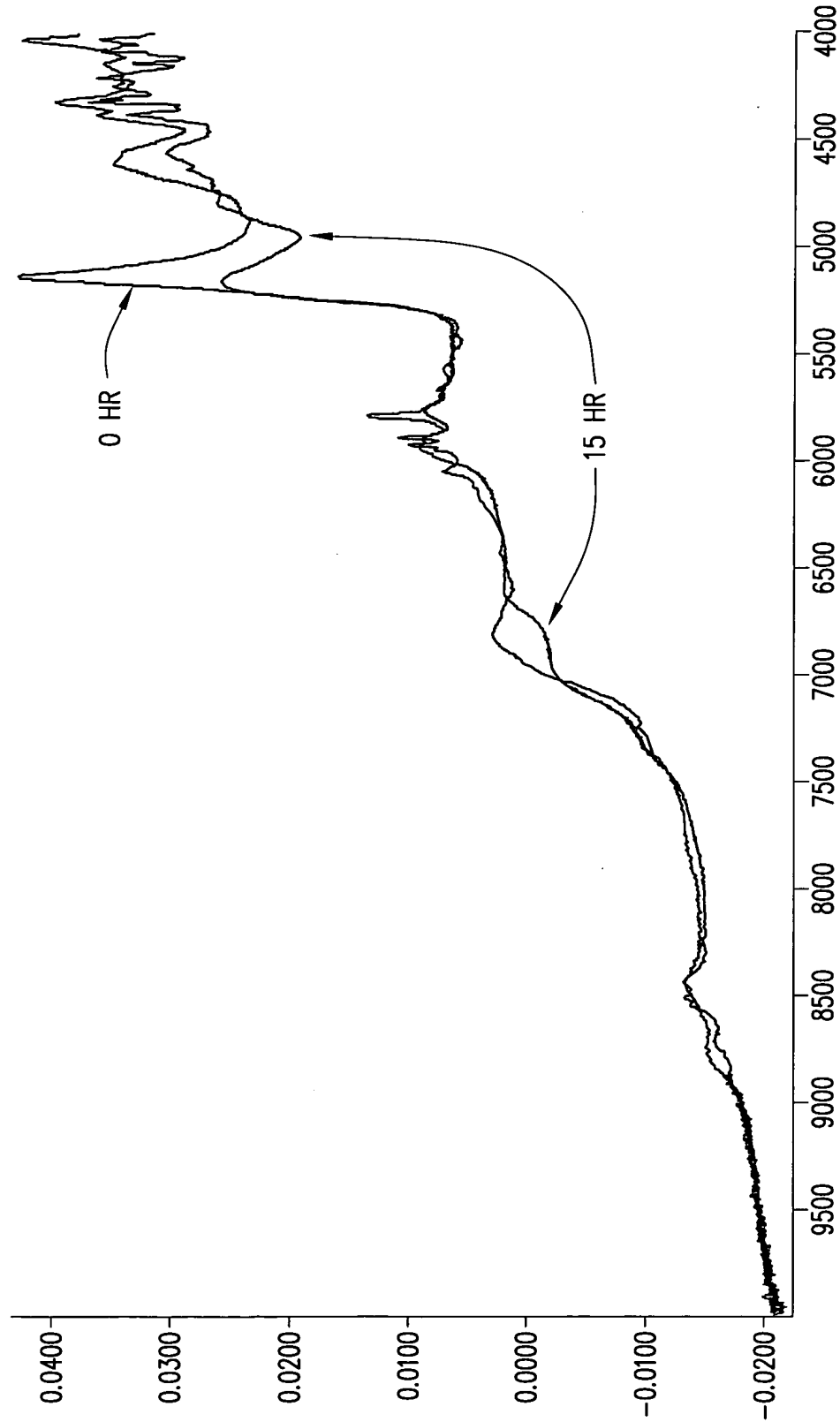
STABILITY OF AMOXICILLIN AFTER HEATING BY XRD



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FIGURE 12A

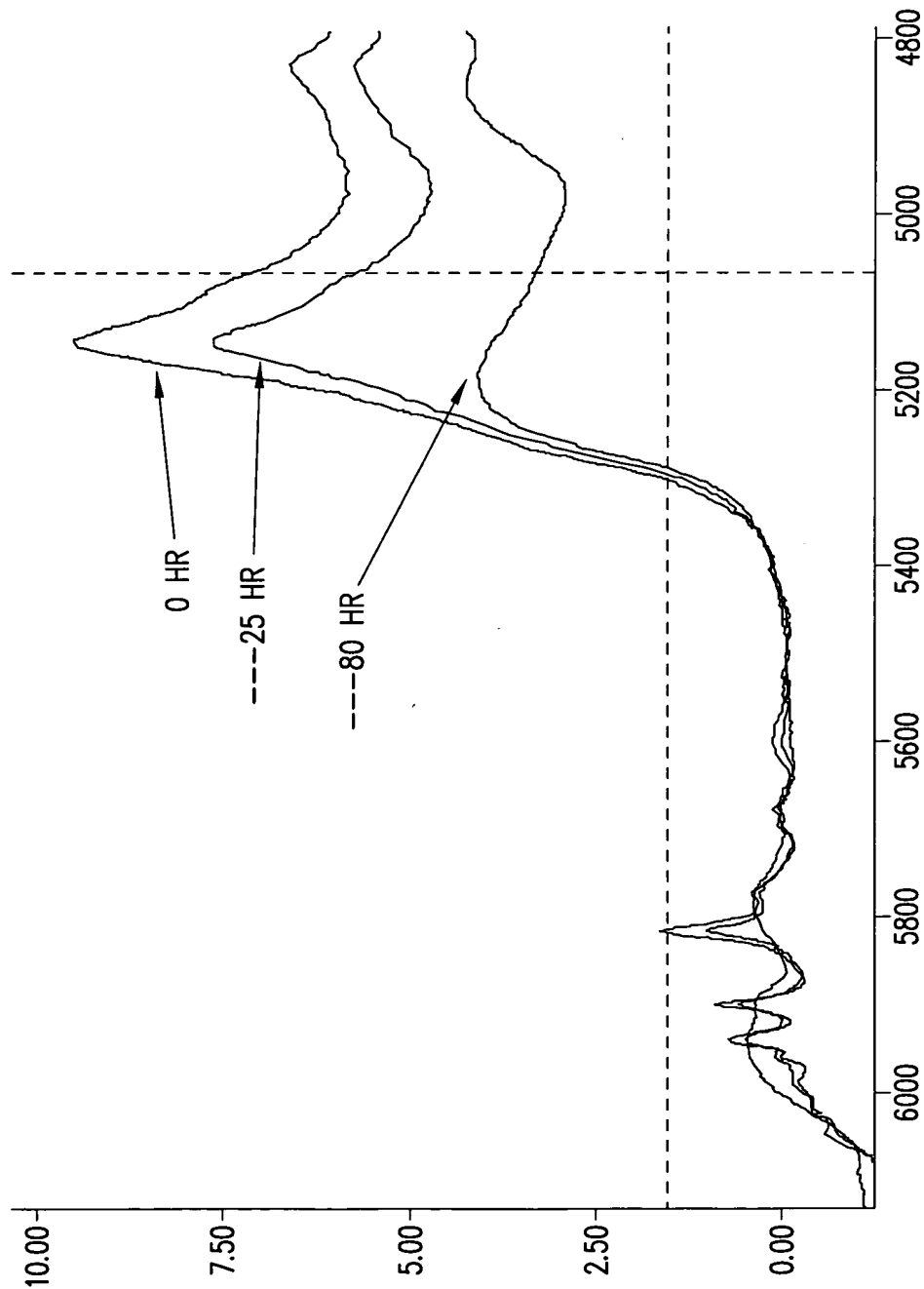
FTNIR OF AMOXICILLIN POWDER



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FIGURE 12B

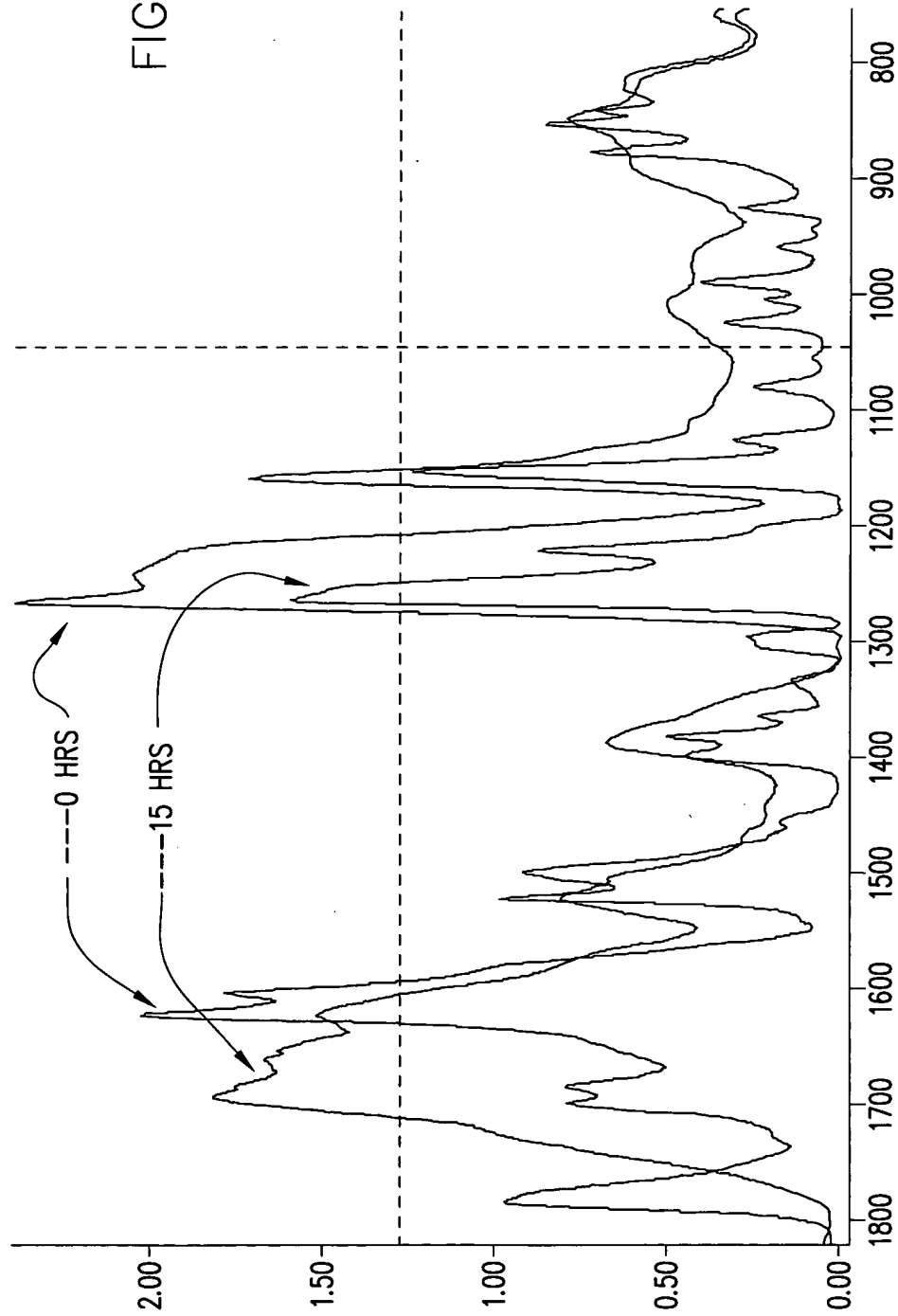
FTNIR OF CEPHALEXIN POWDER IN 8--mL VIALS AFTER 0, 25, 80 HRS @ 80°C



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FIGURE 13

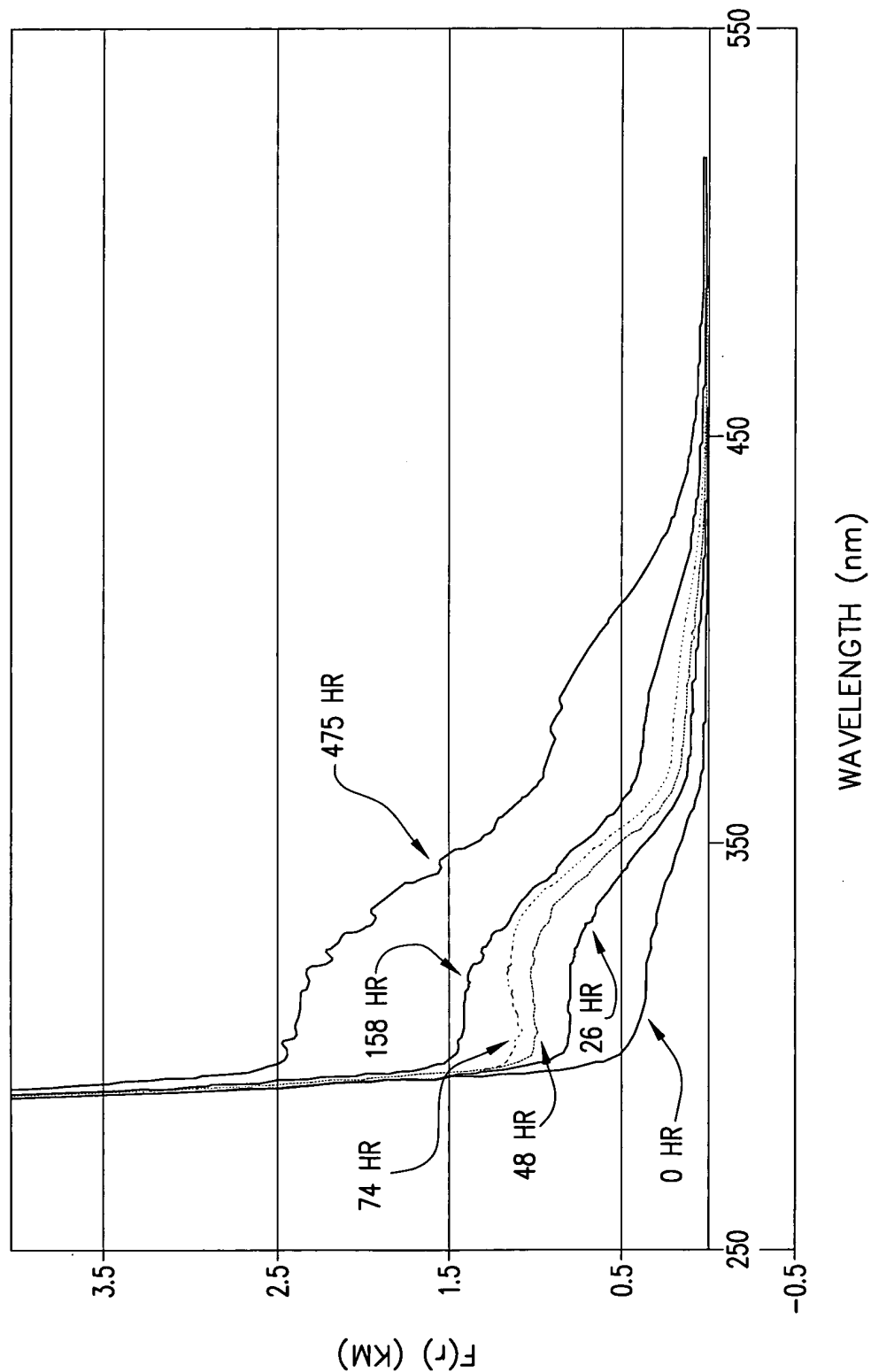
FTIR DIFFUSE REFLECTANCE OF AMOXICILLIN AND ITS 99.5%  
DECOMPOSED POWDER AFTER KM TRANSFORM



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FIGURE 14

UV-VIS DIFFUSE REFLECTANCE MEASUREMENT  
AMOXICILLIN & ITS DECOMPOSITION AT 80° C

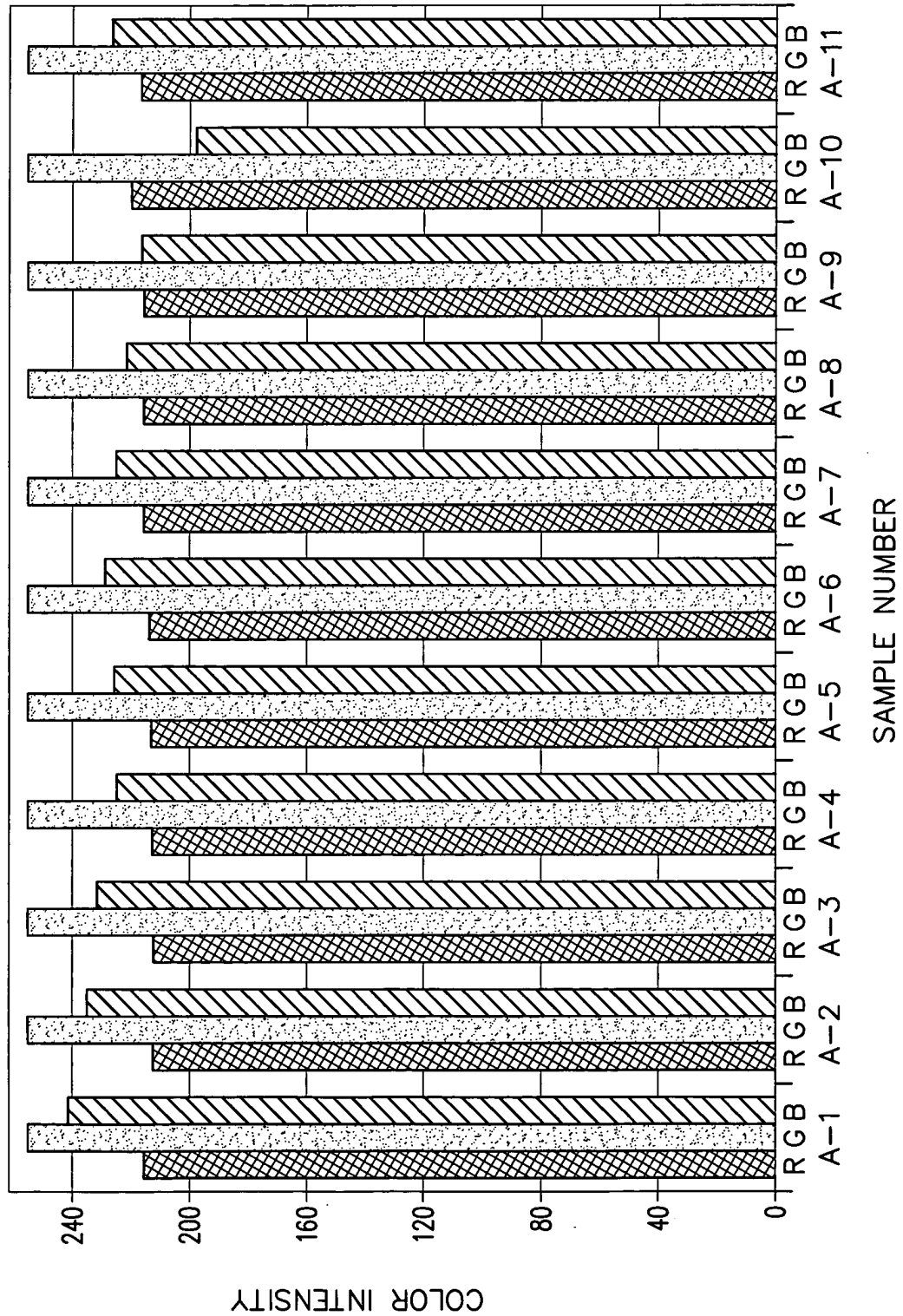




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FIGURE 15A

COLORS OF AMOXICILLIN BATCH-1 SAMPLES



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FIGURE 15B

COLOR OF AMOXICILLIN BATCH-2 SAMPLES

